

REMARKS

Reconsideration of this application, as amended, is respectfully requested.

In the Official Action, the Examiner objects to claim 14 because the recitation of "that is cannot be penetrated" on line 2 thereof should be --that it cannot be penetrated--. In response, claim 14 has been amended, thereby rendering the objection thereof moot.

However, as will be discussed below, features from claim 14 have been added to claims 1 and 17. In such amendment, "is" has been corrected to --it-- as suggested by the Examiner.

Accordingly, it is respectfully requested that the objection to the claims be withdrawn.

In the Official Action, the Examiner rejects claim 16 under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. Specifically, the Examiner argues that the specification does not describe a radio knife having both (1) a plurality of straight openings outwardly extending from the slide hole and (2) a triangular plate arranged on the distal end portion of the electrode portion. In the Official Action, the Examiner also rejects claim 16 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, the Examiner is unsure of the structural limitation of the triangular plate.

In response, claim 16 has been canceled, thereby rendering the rejection thereof moot. Accordingly, it is respectfully requested that the rejection of claim 16 under 35 U.S.C. § 112, first and second paragraphs, be withdrawn.

As stated by the Examiner, the specification does not expressly describe that the electrode plate of the triangular plate is provided at straight openings, and the substantially

triangular platelike electrode portion (e.g., 42) is angularly displaced from the triangular aperture (e.g., 43) (so as to freely rotate) in FIG. 8A. Therefore, the Applicant considers that the radio knife can be configured such that cleaning water discharged through the triangular aperture (e.g., 43) is blocked by the substantially triangular platelike electrode portion (e.g., 42).

Thus, in accordance with the Examiner's statement, claim 16 (depending on claim 1) is canceled and new claim 18 is added to depend from claim 17.

In addition, the Examiner states:

In parent claim 1, both the flexible sheath and the electrode portion are described as having a "distal end portion" and as such, it is unclear which of the flexible sheath and the electrode portion the triangular portion is located on. Additionally, Applicant's recitation of "perpendicular to the axis" is unclear. While Applicant has adequately set forth the sheath having an axis, the orientation of the axis (i.e. longitudinal, running from the proximal end portion to the distal end portion of the flexible sheath) is unclear and as such, the orientation of the "triangular plate arranged perpendicular to the axis" to the remainder of the device is unclear. For the purpose of examination, the Examiner will be taken the triangular plate to be located on the distal end portion of the electrode portion and arranged perpendicular to the longitudinal axis as can be seen in Applicant's figure 4.

Therefore, the Applicant has added new claim 18, which recites: "wherein the distal end portion of the electrode portion comprises a triangular plate arranged perpendicular to a longitudinal direction axis of the electrode portion."

In the Official Action, the Examiner rejects claims 1, 7-9, 14, 15 and 17 under 35 U.S.C. § 103(a) as being unpatentable over Kokai Publication No. 4-329944 (hereinafter

“Kokai”) in view of U.S. Patent No. 4,943,290 to Rexroth et al. (hereinafter “Rexroth”). Furthermore, the Examiner rejects claims 10 and 16 under 35 U.S.C. § 103(a) as being unpatentable over Kokai and Rexroth and further in view of U.S. Patent No. 5,846,241 to Kittur et al. (hereinafter “Kittur”).

In response, the Applicant respectfully traverses the Examiner’s rejections under 35 U.S.C. § 103(a) for at least the reasons set forth below. However, independent claims 1 and 17 have been amended to clarify their distinguishing features. Specifically, independent claim 1 has been amended to recite a radio knife comprising:

“an electrically insulative flexible sheath having a flow channel inside, a distal end portion and a proximal end portion, the distal end portion of the sheath having a distal opening and an axis;

a support member which closes the distal opening of the sheath, the support member having a slide hole with a diameter smaller than that of the distal opening extending along the axis thereof;

an operating wire axially movable in the sheath;

an electrode portion which has a distal end portion and a proximal end portion and of which at least a part forms a rod-shaped portion, the proximal end portion of the electrode portion being coupled to the operating wire, the rod-shaped portion being passed through the slide hole for axial projection and retraction;

a control section which is provided on the proximal end portion of the sheath and controls the operating wire to project and retract the electrode portion in the axial direction, the control section having a high-frequency current supply portion which supplies a high-frequency current to the electrode portion;

a liquid feed portion which is provided on the proximal end side of the sheath and feeds a liquid through the flow channel inside the sheath towards the distal opening; and

a plurality of straight openings extending outward from the slide hole, an inner end portion of each of the straight openings being coupled to the slide hole, wherein a width of each of the plurality of straight openings is set to a

dimension such that it cannot be penetrated by the electrode portion.”

Independent claim 17 has been amended to recite a radio knife comprising:

an electrically insulative flexible sheath having a flow channel inside, a distal end portion and a proximal end portion, the distal end portion of the sheath having a distal opening and an axis;

a support member which closes the distal opening of the sheath, the support member having a slide hole with a diameter smaller than that of the distal opening extending along the axis thereof;

an operating wire axially movable in the sheath;

an electrode portion which has a distal end portion and a proximal end portion and of which at least a part forms a rod-shaped portion, the proximal end portion of the electrode portion being coupled to the operating wire, the rod-shaped portion being passed through the slide hole for axial projection and retraction;

a control section which is provided on the proximal end portion of the sheath and controls the operating wire to project and retract the electrode portion in the axial direction, the control section having a high-frequency current supply portion which supplies a high-frequency current to the electrode portion;

a liquid feed portion which is provided on the proximal end side of the sheath and feeds a liquid through the flow channel inside the sheath towards the distal opening; and

a plurality of triangular openings extending outward from the slide hole, an inner end portion of each of the triangular openings being coupled to the slide hole, wherein a width of each of the plurality of triangular openings is set to become narrower outward from the slide hole such that it cannot be penetrated by the electrode portion.

The amendments to claims 1 and 17 are fully supported in the original disclosure. Thus, no new matter has been introduced into the disclosure by way of the present amendment to independent claims 1 and 17.

Applicants respectfully submit that none of the prior art references, alone or in any proper combination teach or suggest the features now recited in independent claims 1 and 17.

At item 10 of the Office Action, the Examiner states:

“In response, the Examiner proffers that if wear would occur in the instant invention, the electrode could wear down the circular walls of the slide hole, enlarge the entrance to one of the channels 33 such that the electrode would then be displaced off center due to the wear. Furthermore, it is noted that the features upon which applicant relies (i.e., the device’s ability to keep the electrode centered within the slide hole and the device’s ability to not be subject to wear over multiple extension/retraction cycles) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims.”

Therefore, claim 1 has been amended to include features from claim 14. Namely, claim 1 has been amended to recite, “wherein a width of each of the plurality of straight openings is set to a dimension such that it cannot be penetrated by the electrode portion.” Consequently, claim 14 has been canceled.

Claim 17 has been amended to recite, “wherein a shape of each of the plurality of triangular openings is set to a narrow dimension in penetration direction such that it cannot be penetrated by the electrode portion.”

As for claim 14, the Examiner states:

“Kokai fails to disclose the plurality of straight openings as noted in the rejection of claim 1 above. Rexroth discloses the plurality of straight openings (see openings of channels 75-78 in figure 6) and further discloses that the openings are set to a dimension

such that each cannot be penetrated by the electrode portion (support walls 80-83 converging to define the openings with channels 75-78 and dimensioned such that electrode shaft 50 cannot penetrate into the opening, see structural relationship in figure 6).”

However, the openings with channels 75-78 shown in FIG. 6 of Rexroth are a plurality of fan-shaped openings, not “straight openings.” If both side edges of each fan-shaped opening are in a straight shape, the opening is not defined as “straight opening”.

Furthermore, “a width of each of the plurality of straight openings” in claim 1 is formed to prevent “penetration” while the channels are supported by the “slide hole” and the penetration is not prevented by the entire width of “straight openings” in FIG. 6 of Rexroth.

As claim 17 recites “shape of each of the plurality of triangular openings is set to become narrower outward from the slide hole such that it cannot be penetrated by the electrode portion”, the fan-shaped openings 75-78 in FIG. 6 of Rexroth do not “become narrower outward from the slide hole,” but extend toward the outside of the “slide hole” and do not prevent the penetration by their entire shape.

With regard to the rejections of claims 1, 7-9, 14, 15 and 17 under 35 U.S.C. § 103(a), independent claims 1 and 17 are not rendered obvious by the cited references because neither the Kokai application nor the Rexroth patent, whether taken alone or in combination, teach or suggest a radio knife having the features recited in independent claims 1 and 17. Accordingly, claims 1 and 17 patentably distinguish over the prior art and are allowable. Claims 7-9 and 15, being dependent upon claim 1, are thus at least allowable therewith (claim 14 being canceled). Consequently, the Examiner is respectfully requested to withdraw the rejection of claims 1, 7-9, 14, 15 and 17 under 35 U.S.C. § 103(a).

With regard to the rejection of claims 10 and 16 under 35 U.S.C. § 103(a), since independent claim 1 patentably distinguishes over the prior art and is allowable, claim 10 is at least allowable therewith because it depends from an allowable base claim (claim 16 being canceled). Consequently, the Examiner is respectfully requested to withdraw the rejection of claim 10 under 35 U.S.C. § 103(a).

Furthermore, as discussed above, new claim 18 has been added to further define the patentable invention. New claim 18 is fully supported in the original disclosure. Thus, no new matter has been entered into the disclosure by way of the addition of new claim 18. Applicants respectfully submit that new claim 18 is at least allowable as depending upon an allowable base claim (17).

In view of the above, it is respectfully submitted that this application is in condition for allowance. Accordingly, it is respectfully requested that this application be allowed and a Notice of Allowance issued. If the Examiner believes that a telephone conference with Applicants' attorneys would be advantageous to the disposition of this case, the Examiner is requested to telephone the undersigned.

Respectfully submitted,

/Thomas Spinelli/
Thomas Spinelli
Registration No.: 39,533

Scully, Scott, Murphy & Presser, P.C.
400 Garden City Plaza, Suite 300
Garden City, New York 11530
(516) 742-4343
TS:cm